

CLAIMS

What Is Claimed Is:

1. A method comprising:
5 administering an antiarrhythmic drug to a patient;
receiving patient cardiac electrical signals via an implantable
cardiac stimulation device implanted in the patient;
analyzing the patient cardiac electrical signals to detect the effects,
if any, on the cardiac electrical signals caused by the
10 antiarrhythmic drug; and
automatically controlling operation of the implantable cardiac
stimulation device based on results of the analysis of the
patient cardiac electrical signals.
2. The method of claim 1 wherein analyzing the patient
15 cardiac electrical signals comprises analyzing features of events within
the signals including one or more of event duration, event slope, time
between events, and event variability.
3. The method of claim 1 wherein controlling operation of the
implantable cardiac stimulation device comprises outputting a warning
20 signal if the efficacy of the antiarrhythmic drugs falls below a
predetermined threshold.
4. The method of claim 1 wherein analyzing the patient
cardiac electrical signals comprises determining the most likely class of
antiarrhythmic drugs, if any, taken by the patient.
- 25 5. The method of claim 4 further comprising inputting a value
identifying an antiarrhythmic drug prescribed to the patient and its class
and wherein controlling operation of the implantable cardiac stimulation

device includes the step of outputting a warning signal if the class of the prescribed drug does not match the class of antiarrhythmic drugs found to have been taken by the patient.

5 6. The method of claim 1 wherein the implantable cardiac stimulation device includes a drug pump for delivering antiarrhythmic drugs to the patient and wherein controlling operation of the implantable cardiac stimulation device comprises adjusting a dosage of antiarrhythmic drugs delivered by the drug pump based on the results of the analysis of the patient cardiac electrical signals.

10 7. The method of claim 1 wherein the implantable cardiac stimulation device is capable of performing cardiac pacing and wherein controlling operation of the implantable cardiac stimulation device comprises controlling cardiac pacing based on the results of the analysis of the patient cardiac electrical signals.

15 8. The method of claim 7 wherein the implantable cardiac stimulation device is capable of performing dynamic overdrive pacing and wherein controlling cardiac pacing comprises controlling an aggressiveness of the overdrive pacing based on the results of the analysis of the patient cardiac electrical signals.

20 9. The method of claim 1 wherein the implantable cardiac stimulation device is capable of performing defibrillation functions and wherein controlling operation of the implantable cardiac stimulation device comprises controlling defibrillation functions based on the results of the analysis of the patient cardiac electrical signals.

25 10. The method of claim 1 wherein the implantable cardiac stimulation device includes a sensor for sensing a physiological parameter affected by anti-arrhythmic drugs and further comprising:

inputting physiological signals from the sensor; and
analyzing the physiological signals to corroborate the results of the
analysis of the patient cardiac electrical signals.

11. The method of claim 1 wherein analyzing the patient
5 cardiac electrical signals comprises:
inputting values representative of expected changes to features of
cardiac electrical signals caused by antiarrhythmic drugs;
and
10 comparing features of patient cardiac electrical signals detected
after administration of an antiarrhythmic drug with
corresponding features of cardiac electrical signals detected
before administration of the drug to verify that the expected
changes occurred.

12. The method of claim 1 wherein analyzing the patient
15 cardiac electrical signals comprises:
inputting templates representative of the expected quantitative
features of cardiac electrical signals as affected by antiarrhythmic drugs;
and
20 comparing portions of the patient cardiac electrical signals with the
templates to detect the effects, if any, on the cardiac electrical signals
caused by antiarrhythmic drugs.

13. The method of claim 1 wherein analyzing the patient
cardiac electrical signals comprises:
25 inputting templates representative of expected qualitative changes
to features of cardiac electrical signals caused by
antiarrhythmic drugs; and
comparing portions of the patient cardiac electrical signals with the
templates to detect the effects, if any, on the cardiac
electrical signals caused by antiarrhythmic drugs.

14. The method of claim 1 wherein analyzing the patient cardiac electrical signals is performed using only patient cardiac electrical signals detected at substantially the same time of day.

15. The method of claim 1 wherein analyzing the patient cardiac electrical signals cardiac is performed using only averaged patient cardiac electrical signals.

16. The method of claim 1 wherein analyzing the patient cardiac electrical signals to detect the effects, if any, on the cardiac electrical signals caused by antiarrhythmic drugs includes the step of tracking RT intervals affected by antiarrhythmic drugs.

17. The method of claim 16 for use with patients receiving Class III antiarrhythmic drugs wherein controlling operation of the implantable cardiac stimulation device comprises generating a notification signal when RT intervals have returned to a nominal state following patient receipt of the Class III antiarrhythmic drugs.

18. In an implantable cardiac stimulation device for implant within a patient, a system comprising:
means for administering antiarrhythmic drugs to the patient;
means for receiving patient cardiac electrical signals;
means for analyzing the patient cardiac electrical signals to detect the effects, if any, on the cardiac electrical signals caused by antiarrhythmic drugs; and
means for controlling operation of the implantable cardiac stimulation device based on the results of the analysis of the patient cardiac electrical signals.

19. A method comprising:
- prescribing at least one specific antiarrhythmic drug to a patient;
- receiving patient cardiac electrical signals via an implantable
cardiac stimulation device implanted in the patient;
- 5 analyzing the patient cardiac electrical signals to monitor for a
particular result expected to result from the at least one
specific antiarrhythmic drug; and
- generating a warning signal if the particular result is not detected.